Space Weather Forecast

Issued on Monday, 29 May 2023 at 13:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: R1/R2 radio blackouts likely at times throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low with no significant flares. No Earth-directed Coronal Mass Ejections (CMEs) were observed during the period
Solar Wind / Geomagnetic Activity: Solar winds have remained at mostly slow to slightly elevated levels around 400 km/s. The important north-south component has weakly fluctuated. Geomagnetic activity was Quiet (Kp 0-2) after an Unsettled (Kp3) interval at first.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain Low to Moderate. There is a slight chance of Strong-class flares.
Solar Wind / Geomagnetic Activity: A weak Coronal Mass Ejection (CME) that left the Sun on 25 May may give a glancing blow at Earth on Day 1 (29 May). A second CME from an eruption on 26 May could give a glancing blow at Earth late on the Day 2 (30 May) or on Day 3 (31 May). However, both are likely to pass Earth without effect. A coronal hole fast wind may arrive later on Day 4 (1 June).
Solar winds are likely to remain largely at slightly elevated levels, perhaps becoming elevated later on day 4 (1 June). Geomagnetic activity is expected to be mainly Quiet to Unsettled (Kp 0-3), but with a chance of Active (Kp4) and slight chance of G1/Minor Storm intervals (Kp5) through the period.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to be at background levels with solar radiation storms unlikely to occur. However, there is a slight chance of reaching the Minor Storm threshold should any larger flares occur, mainly from the large region in the south.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	20	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	60	60
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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